

**WHAT IS CLAIMED IS:**

## 1. A voltage controlled oscillator comprising:

an oscillator circuit configured to generate a predetermined oscillation frequency signal, the oscillator circuit including a resonator element; and

an oscillation frequency controller circuit configured to control the oscillation frequency of the oscillator circuit by a control voltage signal,

wherein the oscillation frequency controller circuit includes:

a first series circuit disposed between one end of the resonator element and a fixed potential, the first series circuit comprising a first varactor diode and a second varactor diode connected in series in this order from the resonator element side for carrying an alternating current, and

a second series circuit disposed between an input terminal of the control voltage signal and the fixed potential, the second series circuit comprising a zener diode and a resistor element connected in series in this order from the input terminal side,

wherein a terminal of the first varactor diode on the resonator element side and a terminal of the zener diode on the input terminal side are connected for carrying a direct current, and

wherein a terminal of the second varactor diode on the first varactor diode side and a terminal of the resistor element on the zener diode side are connected for carrying a direct current.

2. The voltage controlled oscillator according to Claim 1, wherein the terminal of the first varactor diode on the second varactor diode side is connected to the fixed potential for carrying a direct current.

3. The voltage controlled oscillator according to Claim 1, wherein the terminal of the first varactor diode on the second varactor diode side is connected to the terminal of the zener diode on the resistor element side for carrying a direct current.

## SUBSTITUTE SPECIFICATION

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4. The voltage controlled oscillator according to Claim 1, wherein said fixed potential is a ground potential.
5. The voltage controlled oscillator according to Claim 2, wherein said fixed potential is a ground potential.
6. The voltage controlled oscillator according to Claim 3, wherein said fixed potential is a ground potential.
7. The voltage controlled oscillator according to Claim 1, wherein said fixed potential is a supply voltage potential of said oscillator circuit.
8. The voltage controlled oscillator according to Claim 2, wherein said fixed potential is a supply voltage potential of said oscillator circuit.
9. The voltage controlled oscillator according to Claim 3, wherein said fixed potential is a supply voltage potential of said oscillator circuit.